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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/556,086
Filing Date: April 21, 2000
Appellant(s): WELLS ET AL.

Richard A. Gollhofer

For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 7 February 2007 appealing from the Office action mailed 7/7/2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief. July 2006.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

In the summary of the invention appellants have included a mapping between the specification, and claim limitations, that includes expanded notation and reference to Figures containing elements not specifically recited in the language of the claims, and not previously argued by appellants. The examiner notes that this mapping appears to offer an interpretation of certain limitations that is more specific than the claims actually require.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

The Board remand of 5/8/2009 requires the Examiner to determine whether claims 1-4, 6-20, 22-24, 26-27, 29-31, 33-43 meet the requirements of being a patent eligible process under *35* USC *§* 101.

Process claims 1-4, 6-20, 22-24, 26-27, 29-31, 33-43 were also analyzed under 35 USC 101. It is recognized that, in order to be statutory, a process claim must be 1) tied to a particular machine or apparatus, or 2) it transforms a particular article into a different state or thing. *In re Bilski*, 88 USPQ2d 1385 (2008). It is also recognized that a general purpose computer may be converted into a particular computer through the operation of software on the computer. *In re Alappat*, 31 USPQ2d 1545 (1994). For the instant invention, the specification makes clear that at least the extracting step (expressly recited in independent claims 1, 3, 5, 6, 10, 18 and inherently required by claim 26) is carried out via software operating on a computer. As such, the process is tied to a particular machine, thus meeting the *Bilski* test.

Consider claim 1:

> 1. A method for building a computational model of human perception of a descriptor of music, comprising:
> a) *extracting* from each of at least 5 electronic representations of musical recordings at least two numeric parameters;
> b) for each recording, combining the numeric parameters with a weighting for each parameter to compute a single number representing the descriptor for that recording;
> c) adjusting the weightings for the parameters to find a set of weightings where each *computed* descriptor for each recording most closely *matches* perceptions reported for the recording by one or more *human* listeners.

The specification was consulted for the definitions of extraction and descriptor. See section 4.2.6 (pg. 18) and particularly note lines 5-17 (emphasis added):

> "The invention described here is illustrated in Figure 3. A database of stored music 301 is played to one or more humans, step 302, who rate the music on the amount of one or more descriptors. The same music is fed into a parameter extractor 303, that uses methods known in the art to extract parameters 304 that are relevant to the perception of music, such as tempo, rhythm complexity, rhythm strength, dynamic range, and harmonicity. Numerous different methods for extracting each of these parameters are known in the art. A model of a descriptor 305 is created by combining the parameters with different weightings for each parameter. The weightings may vary with the value of the parameter. For example, a parameter may contribute to a descriptor value only when it is above a threshold or below a threshold or within a range. The model is refined, step 307, by minimizing the difference, calculated in step 306, between the human-derived descriptor value and the machine-derived value."

The first two sentences distinguish between a human and a "parameter extractor". The last sentence clearly distinguishes between human and machine derived descriptor values – compare that to the last limitation of claim 1:

> c) adjusting the weightings for the parameters to find a set of weightings where each *computed* descriptor for each recording most closely *matches* perceptions reported for the recording by one or more *human* listeners.

Also note line 22, page 14 of the original specification:

> "The output from each descriptor model is a machine-derived descriptor 308."

The "extracting" limitation does not constitute insiginifcant post-solution activity. The extracting constitutes manipulating the existing data (the music) to characterize the data and is required for the claimed invention to function.

The extracting, combining and adjusting steps are too complex and time-consuming to be carried out mentally or by manual computation, especially in light of the disclosed embodiments (pp. 15-17) for parameter extraction. In one example see 'rhythm strength' on pp. 15-16, especially noting lines 1-18, page 16:

> Negative values (corresponding to decreases in amplitude) in the onset tracks are truncated to zero, since the onsets are deemed to be most important in determining the temporal locations of beats. A correlogram of the onset tracks is then computed by calculating the unbiased autocorrelation of each onset track. The frequency bins are sorted in decreasing order based on the activity in the correlation function, and the twenty most active correlation functions are further analyzed to extract tempo information. Each of the selected correlation functions is analyzed using a peak detection *algorithm* and a robust peak separation method in order to determine the time lag between onsets in the amplitude of the corresponding frequency bin. If a lag can be identified with reasonable confidence, and if the value lies between 222 **ms** and 2 seconds, then a rhythmic component has been detected in that frequency bin. The lags of all of the detected components are then resolved to a

> single lag value by means of a weighted greatest common divisor algorithm, where the weighting is dependent on the *total energy* in that frequency bin, the activity in the correlation function for that frequency bin, and the degree of confidence achieved by the peak detection and peak separation algorithms for that frequency bin. The tempo of the song is set to be the inverse of the resolved lag. The rhythm strength is the sum of the activity levels of the 20 most active correlation functions, *normalized by the total energy* in the song. The activity level of each correlation function is defined as the *sum-of-squares of the negative elements of second difference of that function*. It is a measure of how strong and how repetitive the beat onsets are in that frequency bin.

The database (claim 26) is discussed in section 4.3 (pp. 18-19). The above discussed extraction step is inherent in the process of searching the database. The claim requires searching a computerized database containing difference numbers between target and other musical recordings. The process for searching the database is defined in fig. 4 (Lines 25-25, page 18, specification state that a "...method for searching the database is illustrated in fig. 4"). The process disclosed in fig. 4 requires the parameter extractor which, as previously discussed, is tied to another statutory class.

The first paragraph of section 4.3 also discloses that in the search of the database, a user may receive results of the search via an interface (pg. 18, lines 29-30; fig. 5). This interface is also tied to the particular machine. Note the 'slider bars', etc.

The claimed invention does not fall within a judicial exception (law of nature, natural phenomena, or abstract idea) and provides for a practical application, as per the Interim Guidelines (MPEP 2106.IV.C.). In the present case, the results of a computerized analysis (descriptors) of musical recordings are compared to human perceptions in order to generate a model that most accurately matches human perceptions of said music. One example of a practical application is for an automatic search for similar music within a database (specification at page 1; claim 26). The search can be carried out to locate specific types of music (page 5, lines 15-22, specification).

The claim does not preempt all uses in the field of use. The tie to the other statutory class imposes meaningful limits on the scope of the method claim. For example, the claims are limited to analysis of musical recordings.

Claims 1-4, 6-20, 22-24, 26-27, 29-31, 33-43 meet the requirements of being a patent eligible process under *35 USC § 101*. There are no new grounds of rejection in this Supplemental Examiner's Answer.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

The following is a listing of the evidence (e.g., patents, publications, Official Notice, and admitted prior art) relied upon in the rejection of claims under appeal.

- "Music Content Analysis through Models of Audition", Martin et al, ACM Multimedia Workshop '98, ACM 1998

- U.S. Patent 5,918,223 issued to Blum et al.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-20, 22-24, 26-27, 29-31 and 33-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Music Content Analysis through Models of Audition", Martin et al, ACM Multimedia Workshop '98, ACM 1998 in view of U.S. Patent 5,918,223 issued to Blum et al. (Of Record)

In order to clarify the examiners 103(a) rejection reasoning, a brief summary of the prior art and of the claimed subject matter will first be presented.

Appellants have disclosed a computer method, program code, and database for modeling human perception of music by extracting numerical representations from the recordings, weighting the parameters, and adjusting the weighting to find a descriptor that most closely matches perceptions reported by human listeners. Appellants have also claimed creating and searching a database based on descriptors matching the perception of human listeners. The examiner first notes that the claimed "extraction" (extractor), as disclosed in appellants' specification (page 8, lines 7-10) uses methods known in the art for the extraction of musical parameters (e.g. tempo, rhythm, etc.), in addition to being taught in the referenced prior art. Second, the claimed "weighting" to compute a number representing a "descriptor" for the recording, amounts to simple statistical weighting where a factor assigned to a number in a computation (as in determining an average), to make the number's effect on the computation reflect its importance. (Wikipedia, for example) Hence, a skilled artisan would have known to

apply "weighting" to the extracted parameters. Prior art Blum also teaches the use of such weighting techniques in order to emphasize perceptually important sections of musical sound (CL6-L40-43). Third, the claimed adjusting of the weighting based on the perception of human listeners is exactly what is suggested by prior art Martin. Namely, using the response of human listeners to identify musical parameters (page 7, para:2-3, Le. report human perceptions), the concept of modeling perception by building "statistical classifiers" (page 7, para:4), and the importance of "statistical equivalency" (page 4, para:7,8) in the classifiers. Statistical classification is a well-known statistical procedure in which individual items are placed into groups based on quantitative information (Wikipedia, for example), and again would have been knowingly implemented by a skilled artisan.

The examiner has therefore maintained that appellants proposed "model of human perception of music" is at least conceptually disclosed in the teachings of Martin and Blum, and would have therefore knowingly been implemented by a skilled artisan having access to these prior art teachings.

1) The Martin reference: The Martin reference is a research paper that conceptually proposes computer modeling in a musical multimedia system using human listener input to perform such tasks as; identify music genre, find similarities between pieces of music, identify musical parameters such as tempo and rhythm, and classifying music into categories. (page 7, para:2). Martin also introduces the concepts of using the "direct perception" of human listeners into a computational model (page 5, para:4, 9), and the concept of multimedia

databases being accessed based on human perceptions of music (page 2, para:I), e.g. searching a database with descriptors similar to matches reported by human listeners.

2) The Blum reference (US 5,918,223): The Blum reference (of record) teaches a multimedia database system capable of the analysis and comparison of audio data files based on content where the analysis produces a numeric value (feature vector) that can classify and rank the similarity between individual audio files (Abstract). Blum further discloses the extraction of scalar descriptors that numerically describe recorded music, creating/searching a database of recorded audio data (Abstract, CL6-L12, CL6-L54, Figs. 1-5), and extracting multiple parameters from (n) number of recorded (electronic representation) audio files (CL7-L14-47, CL 15-L29, Figs. 2, 14) Blum also teaches statistical weighting of audio waveform sample (recorded) parameters to normalize sampled values of musical parameters (CL 18-L20-45, CL14-L40-49).

Against, this backdrop the examiner has rejected claims 1-20, 22-24, 26-27, 29-31 and 33-43 are rejected under 35 U.S.C. 103(a) as being obvious in view of "Music Content Analysis through Models of Audition", Martin et al, ACM Multimedia Workshop '98, ACM 1998 in view of U.S. Patent 5,918,223 issued to Blum et al as follows:

Claims 1-20, 22-24, 26-27, 29-31 and 33-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Music Content Analysis through Models of Audition", Martin et al, ACM Multimedia Workshop '98, ACM 1998 in view of U.S.

Patent 5,918,223 issued to Blum et al. (Of Record)

Regarding independent claims 1, 3, 5, and 6: Martin teaches methods for building a computational model of human perception of music (page 1, para:3-5, page 7, para:1) by extracting representations (page 6, para:1-4, Abstract) of musical recording parameters (i. e. parameters for at least rhythm and pitch). Most importantly Martin suggests that elements of a computational model of human perception of music should be based on the perceptions reported by a human listener (page 5, para:4, page 7, para: 1-3), and that computational model descriptors of recordings should closely match perceptions as heard (reported) by a human listener (page 7, para:1, 2). Martin specifically sets forth that only a human listener can "identify genre" and realize "what other pieces or kinds of music it bears similarity to". (i. e. a music classification system and model must account for the fact that a sample piece of music can belong to one of several "classes" (genre) of music) Examiners note/observation: The "extractor", as disclosed in appellants' specification (page 8, lines 7-10) uses methods known in the art for the extraction of musical parameters. (e.g. tempo, rhythm, etc.) Martin also introduces the concept of multimedia databases being accessed based on human perceptions of music (page 2, para: 1), e.g. searching a database with descriptors similar to matches reported by human listeners. Martin further suggests that a human listener can perform such tasks as; identify genre of the music, identify what other pieces or kinds of music it bears similarity to, have emotional reaction to the music, and classify the music. (page 7, para:2) It should also be noted that, according to the

specification, the claimed "descriptors" are represented using linear models (McCullagh and Nelder) that are again admittedly known in the art (specification page 13, lines 4-7).

Martin does not explicitly disclose combining parameters to compute a descriptor or the use of parameter weighting.

Blum et al discloses a multimedia database system capable of analysis and comparison of audio data files based on content where the analysis produces a numeric value (feature vector) that can classify and rank the similarity between individual audio files (Abstract). Blum further discloses the extraction of scalar descriptors that numerically describe recorded music, creating/searching a database of recorded audio data (Abstract, CL6-L12, CL6-L54, Figs. 1-5), and extracting multiple parameters from (n) number of recorded (electronic representation) audio files (CL7-L 14-47, CL 15-L29, Figs. 2, 14). Blum also teaches statistical weighting of audio waveform sample (recorded) parameters to compute a description (numerical) of the sample (Abstract, CL10-L67 to CL11-L45, Figs. 6-7), finding a set of numeric values (vectors, e.g a numerical discriptor) to classify the similarity between audio files (e.g. songs) in a database (abstract), and a computed distance (difference) between audio files (CL3-L35-67). In statistics, "weighting" is a technique used to assure representation of certain groups in the sample. Data for underrepresented cases are weighted to compensate for their small numbers, making the sample a better representation of the underlying population. (Source: "Statistical Methods", Freund, Academic Press, 1993) Hence “weighting" would have knowingly been incorporated by a skilled artisan, in order to provide a better representation of the descriptor parameters, and to "balance" the

descriptors to match the human perception reported by listeners. Weighting techniques are also implemented by Blum (CL14-L41-65, Fig. 13) as noted above. Here amplitudes of sound files are weighted to cause statistical values to depend more on louder parts. The examiner also maintains that "combining" and "weighting" the descriptors from multiple samples of music would be necessary in order to determine the similarity of a particular piece of music with other genres as realized by Martin.

It would have been obvious to one having ordinary skill in the art at the time the claimed invention was made to modify the teachings of Martin relating to a computational model of human perception of music based on perceptions of a human listener, with the teachings of Blum relating to extraction of scalar descriptors that numerically describe recorded music, creating/searching a database of recorded audio data, to realize the elements of the claimed invention. An obvious motivation exists since, as referenced in the prior art, only a human listener can "identify genre" and realize "what other pieces or kinds of music it bears similarity to". (See: Martin, page 7, para:1, 2). Accordingly, a skilled artisan tasked with realizing a system, method, and database for music searching based on human perception, and having access to the teachings of Martin and Blum, would have knowingly modified the teachings of Martin with the teachings of Blum (or visa versa) to realize the claimed elements of the present invention.

Per dependent claims 2, 14-17: Blum would obviously include a computer readable medium containing the computer program for performing the disclosed techniques relating to music perception and a database of music recordings (Fig. 1).

Per claims 7, 10-13, 18-20, and 26: As cited above, Blum teaches a method and system

for creating and searching a database of data records which are associated with music recordings. (Fig. 1) The method and system are based on a model formed from the perception of the music inclusive of extracting numeric parameters' from an electronic representation of musical recordings. Blum also considers the likeness (i. e. similarities) between the extracted representation of the various musical recordings, extracting numeric parameters (i.e. descriptors) from recordings by use of weighting parameters (CL17-L 7 to CL18-L 43), and computing (calculate) the correlation between recorded sections (i.e. the stored numerical descriptors). Blum also teaches identifying data records associated with a music recording in a computer readable database (CL21-L53 to CL26-L10) based on numerical parameters (descriptors) describing the music. Martin also at least conceptually teaches multimedia databases being accessed based on human perceptions of music (page 2, para:1), e.g. searching a database with descriptors similar to matches reported by human listeners. Hence, using the same obvious adjusting the weighting based on human perception and using a human's perception of a sound source in modeling the effect on the descriptors (parameters) describing the music and recording database) of the music as would be perceived by human subjects.

Per dependent claims 4, 8, 9, 22-24, 30-31, 33: Blum would obviously include a computer readable medium containing the computer program for performing the disclosed techniques relating to music perception and a database of music recordings (Fig. 1).

Per dependent claims 27, 29, 34-43:This group of claims merely require that groups of

at least two numeric parameters from well-known musical attributes relating to dynamic range, loudness, harmony, rhythm, attack, tempo, note duration, key, etc. be selected. (See: Blum Figs. 2-14)

(10) Response to Argument

Appellants argue that the rejection has failed to show every feature of the claims and have focused on six specific issues as not being taught in the prior art.

In the final office action of July 7, 2007 pages 2-6 the examiner presented a detailed analysis of the rejection reasoning relating to the obviousness of the claimed subject matter relative to the prior art.

In a nutshell, the examiner submits that the underlying fundamental concept disclosed in both the present invention, and the prior art Martin, is the use of the results of a human listeners perception of music to statistically "weight in" on the mode/, and use the "humanized" model for searching and archiving music in a musical multimedia system and database. Appellants have simply failed to embrace the teachings of the prior art references in their entirety, and have instead focused their arguments on features in the prior art that art not related to this fundamental concept.

Issue 1: Appellants main thrust is arguing that Martin does not teach a "method for building a computational model of human perception of music" as recited in claim 1. In response, the examiner submits that it is the combination of Martin and Blum that renders the claimed model obvious. Not simply Martin as asserted by appellants.

As previously set forth in the final office action, the examiner submits that applicant's "computational model of human perception" as presently claimed, simply consists of three method steps. For example, referring to independent claim 1 they are:
1) extracting two numeric parameters (min.) from five musical recordings (min.)
2) combining numeric parameters with weighting forming a single number descriptor
3) adjusting the weighting to find set matching perceptions reported by human listeners.

The examiner maintains that these broad limitations are rendered obvious by the prior art for the following reasons.

First, Martin clearly sets forth that the research disclosed in the reference is directed toward the construction of a "model" of "human music perception" (page 7, para: 1) including using the response of human listeners to identify musical parameters and "classify" the music (page 7, para:2-3, i.e. report human perceptions). Martin also introduces the concept of modeling perception by building "statistical classifiers" for evaluating musical "properties" and making "musical judgments" (page 7, para:4).

As to the first method step, the claimed extracted two "numeric parameters" are simply any two musical parameters including rhythm, tempo, loudness, and harmonic content (Specification 4.2.4). These elements are taught by both Martin (page:2) and Blum (Figs. 5-1) It should also be noted that the "extractor", as described in appellants' specification (page 8, lines 7-10) is disclosed as using methods that are admittedly known in the art for the extraction of musical parameters. (e.g. tempo, rhythm, etc.)

Considering the second method step, the claimed combining numeric parameters with weighting forming a single number descriptor simply amounts to simple statistical

weighting. In statistics "weighting" is simply a factor assigned to a number in a computation, as in determining an average, to make the number's effect on the computation reflect its importance. (Wikipedia, for example) Blum teaches the use of such weighting techniques in order to emphasize perceptually important sections of musical sound (CL6-L40-43), finding a set of numeric values (vectors, e.g a numerical descriptor) to classify the similarity between audio files (e.g. songs) in a database (abstract), and a computed distance (difference) between audio files (CL3-L35-67). Hence a skilled artisan would have known to "weight" the extracted numeric parameters into a single 'weighted" representation of the numerical parameter (i.e. a single number descriptor) in order to emphasize its computational importance. Martin also sets forth the concept of modeling perception by building "statistical classifiers" (page 7, para:4), and the importance of "statistical equivalency" (page 4, para:7,8) in the classifiers. It should also be noted that, according to the specification, the claimed "descriptors, are represented using linear models (McCullagh and Nelder) that are again admittedly known in the art (specification page 13, lines 4-7).

As to the final method step of adjusting the weighting to find a set matching perceptions reported by human listeners, Martin sets forth using the response of human listeners to identify musical parameters and the concept of modeling perception by building "statistical classifiers" as noted above. Statistical classification is a well-known statistical procedure in which individual items are placed into groups based on quantitative information. (See: Wikipedia encyclopedia, for example) In this case, the groups are simply the set of weightings matching perceptions reported by human

listeners. That is, it would appear that Martin, at least conceptually, sets forth the idea of using statistical classification with the perception of music reported by human listeners in constructing a model of human perception of music (e.g. by "comparison to human listening behavior and judgments" (Martin: page 4, para:1)), as does the claimed invention. (Also see response to Issue 4)

Issue 2: Here appellants appear to again argue that Martin does not teach a "method for building a computational model of human perception of music" and that Martin lacks the capability to automatically detect genre. Since the computation model has already been discussed above, the examiner addresses only the second issue of automatically detecting genre. In response the examiner first submits that appellants have not specifically claimed the ability to detect genre in the language of the claims. Hence, the argument is more specific that the claims require. Second, the only mechanism for the detection of genre in the present invention appears to be based on the perceptions reported by human listeners. (specification pages 19-20, e.g scoring similarity) This is exactly what is suggested by Martin. Namely that a human listener can perform such tasks as; identify genere of the music, identify what other pieces or kinds of music it bears similarity to, have emotional reaction to the music, and classify the music (page 7, para:2) (page 7, para:2)

Issue 3: Motivation to combine the references. The examiner maintains the motivation of analogous arts Martin and Blum as cited in the final office action of July 7, 2006. However, the examiner further notes that there are numerous other motivational reasons disclosed in Martin. These include the desire to give computational systems

"human-like listening skills" (page 2, line 1), and the desire interact with based on user (human-like) interests (page 2, para:2). Here the prior art both suggests, and provides reasoning by way of examples, of the benefits of including human-like perception in a multimedia music system and database. That is, Martin specifically suggests the advantages of providing a "humanistic" machine model (e.g. by "comparison to human listening behavior and judgments" (Martin: page 4, para:1)), in a multimedia system such as Blum. (Martin: page 2, para: 1&2)

Issue 4: Here appellants appear to argue that the prior art does not disclose the claimed features relating to "find a set of weightings where each computed descriptor (difference number) for each recording (pair) most closely matches perceptions reported for the recording by one or more human listeners", "combining the numeric parameters with a weighting for each parameter to compute a single number representing the descriptor for that recording" and as recited in the claims.

In response the examiner submits that in order to find the similarity (likeness) between recordings, based on observations made by human listeners, it is obviously necessary to statistically balance (i.e. weight), in order to have the descriptor (or difference number) accurately "match" the perception of a human listener. This would have been known to one of ordinary skill in the art as noted above. The advantages of weighting are realized by Blum where weighting is applied in order to emphasize perceptually important sections of musical sound (CL6-L 40-43). The use of statistical equivalency (e.g. weighting) is also suggested by Martin (page 4, para:7) as noted above. The method of initially representing descriptors (specification page 13, line 2

"McCullagh and Nelder"), and humanly "rating" the descriptors (specification page 9, line 24, "Lickert scale") in the present invention is admittedly known in the art. The examiner therefor submits that a skilled artisan, motivated as noted above, would have knowingly applied (found sets of) weighting for descriptors and difference number, in order to emphasize (statistically balance) computational importance of the perception of human listeners in the model

Issue 5: Here appellants argue that the prior art does not disclose the claimed feature of "assembling the computed difference numbers into a database where each computed difference is associated with the identifier for each of two recordings for which the difference was computed". As previously noted, Martin suggests that a human listener can perform such tasks as; identify genre of the music, identify what other pieces or kinds of music it bears similarity to, have emotional reaction to the music, and classify the music (page 7, para:2). Appellants proposed "likeness model" (specification 4.5) is simply based on the concept of human listeners rating (judging) the similarity (likeness) of pairs of songs to form a new descriptor. (e.g. rating pieces of music for similarity, as suggest by Martin) Blum discloses finding a set of numeric values (vectors) to classify the similarity between audio files (e.g. songs) in a database (abstract) and a computed distance (difference) between audio files (CL3-L35-67).

Looking into appellants' specification (sections 4.4.3 and 4.5.3) gives only a vague description of the proposed database organization. There appears to be no specific description of the claimed "identifier". The examiner therefore interprets the identifier as simply a similarity identifier. At best, the proposed database appears to

simply be a multi-dimensional (hierarchical) arrangement based on similarity. Blum discloses difference identifiers defining the similarity between audio files. (Abstract) Hierarchical databases are very well-known and commonly employed in the art for logically a forming a database structure based on a relationship between the data. (Microsoft Computer Dictionary, 1997) Hence a skilled artisan would have knowingly created a hierarchical database arrangement based on similarity as disclosed in Blum.

Issue 6: Here appellants argue that the prior art does not disclose the claimed feature of "searching a database containing computed difference numbers between the target recording and a plurality of other recordings for those recordings which a small computed difference number from the target music record". Appellants also argue that the distance searching of Blum is not the same as "searching a database" as recited in the instant claims. In response the examiner again notes that appellants specification (section 4.5. 6) gives only a vague description of the proposed database searching technique. As best understood from the brief description in Section 4.5.6, the database searching is simply based on likeness (closeness in similarity to a target), and involves returning a likeness fist to the user. (Specification 4.5.6) Blum discloses searching a database and returning ranked list of similar (like) sound files (CL3-L34-39), and computing distance to a "target" sound file based on a numerical distance (CL22-L1-20, CL24-L6).

The examiner therefor maintains that the claimed subject matter as disclosed by appellants is rendered obvious by the combination of Martin and Blum.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the

Related Appeals and Interferences section of this examiner's answer.

For the above reasons it is believed that the rejections should be sustained.

Respectfully submitted,

/Hugh Jones/

Primary Examiner, Art Unit 2128

/Kamini S Shah/

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